

May 28, 1962

Dr. Peter H.A. Sneath
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Dear Peter:

I was most interested to see your manuscript on "Longevity of Microorganisms" upon my return from Japan. The matter has, of course, attracted even more interest in the light of the recent (preposterous) claims of the isolation of organisms from meteorites. I am sure you will be well acquainted with the eventual publication of these fantasies in Nature, and in the Annals of the New York Academy of Sciences. One other report that I might bring to your attention if you have not already seen it is indicated by the enclosed clipping from the New York Times. I believe I may also have somewhere seen his publication on this story in the Archiv or Zentralblatt für Mikrobiologie.

At least from an academic standpoint there is a bit of a problem in defining dormancy. Where you have spores, there may be no such difficulty since you could there define dormancy as failure to germinate, but with vegetative cells just what level of metabolic activity must be precluded?

Some additional items of comment:

Hal Halvorsen and Al Sussman are writing a monograph on bacterial spores including a chapter on anabiosis. It would be constructive for you to establish contact with them.

Page 2. I am not irrepressibly impressed by reliance on mercuric chloride. Even if you could depend on its bacteriostatic action you really have no direct way of establishing how thoroughly it has impregnated the sample. I would also ask just how dry is the immediate environment of the specimen, even in a "dry" herbarium. To jump to the other side of the fence I think we have to be a little skeptical of the conditions reported in your reference 19, as it is not at all clear what their percentage moisture actually refers to. Elliot Packer collected some references on the humidity requirements for bacterial growth, and if I can dig them up I will send them along either now or when they turn up.

I don't have your Figure 1, but can imagine its import.

It would be helpful throughout the discussion to refer to specific death rates, that is, the survivorship decrement per year to help in the extrapolation. This is, of course, implicit in your discussion.

Page 7. Free fatty acids might be eventually bactericidal. Perhaps

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Perhaps most important I have to call your attention to Carl Sagan's papers which encompass some of the calculations you have put down on the radiation effects.

Finally, I hope your decision to come to the States will be a happy one. I do not off hand think of any position obviously much more suitable than the ones you already have in mind. If any such does turn up, of course I will let you know promptly.

Yours sincerely,

Joshua Lederberg
Professor of Genetics

JL/jc